

PCT/EP2003/009104



Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 8324 WO Z RSF-ALG		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP2003/009104	International filing date (day/month/year) 18 August 2003 (18.08.2003)	Priority date (day/month/year) 21 August 2002 (21.08.2002)	
International Patent Classification (IPC) or national classification and IPC F16H 61/02			
Applicant ZF FRIEDRICHSHAFEN AG			

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 1 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 31 January 2004 (31.01.2004)	Date of completion of this report 11 November 2004 (11.11.2004)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

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International application No.

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I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
 pages 1-31, as originally filed
 pages, filed with the demand
 pages, filed with the letter of
- ☒ the claims:
 pages 2-13, as originally filed
 pages, as amended (together with any statement under Article 19), filed with the demand
 pages 1, filed with the letter of 11 October 2004 (11.10.2004)
- ☒ the drawings:
 pages 1/9-9/9, as originally filed
 pages, filed with the demand
 pages, filed with the letter of
- ☐ the sequence listing part of the description:
 pages, as originally filed
 pages, filed with the demand
 pages, filed with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item. These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig. _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

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V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	3-11	YES
	Claims	1, 2, 12	NO
Inventive step (IS)	Claims	7, 8, 9	YES
	Claims	1-6, 10-12	NO
Industrial applicability (IA)	Claims	1-12	YES
	Claims		NO

2. Citations and explanations

Reference is made to the following documents:

D1: GB-A-2304835

D2: DE-A-19747262

D3: US-A-4677879

1.a. Document D3 discloses a method for controlling a power train of a vehicle, with a driving engine (E/G), with a multi-group transmission and a drive, said multi-group transmission consisting at least of an automatic transmission (A) and a downstream range-change unit (T) that can be shifted via shift elements (54 inter alia), a shift element of the range-change unit (T) that is to be engaged being synchronized (shifting of 54) by means of a shift element (BO, CO) control unit of the automatic transmission (A) when the transmission ratio of the range-change unit (T) is changed.

It is explained in D3 that the range-change unit (T) is shifted in the following way: when the driver operates the manually shifted unsynchronized range-change unit and there has been a detection showing that the range-change unit has entered the neutral

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position (the position in which synchronization is required in order to permit shifting into the other range ratio), shift elements (BO, CO) of the automatic transmission (A) are controlled (actuated simultaneously) such that no torque is transmitted to the output shaft (42).

The effect thereof is that it is easier to shift the range-change unit. Since the range-change unit is provided with "dog clutches" - unsynchronized clutches - it is possible to shift into the intended gear only under synchronization conditions. For a person skilled in the art, making it easier to shift into the intended gear of the range-change unit includes (at least) the creation of such synchronization conditions.

Although document D3 specifies that the method of range-change shifting is carried out once it has been determined that the vehicle speed is slower than a predetermined value, and although it is even possible to carry out the method according to D3 when the vehicle is standing still, said method can be readily carried out at any vehicle speed.

Therefore, the subject matter of claim 1 is not novel (PCT Article 33(2)) or is at least not inventive in light of the teaching of document D3 (PCT Article 33(3)).

- 1.b. Document D2 also describes the use of an automatic transmission that is part of an assembly with a range-change unit for the purpose of synchronizing (an intermediate clutch). Therefore, the only feature of the use of the automatic transmission in an assembly with a range-change unit for synchronizing

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said range-change unit also appears obvious on the basis of document D2 alone. The shifting process according to D2 can be carried out at any vehicle speed. In light of the disclosure of D2, the subject matter of claim 1 does not satisfy the requirement of PCT Article 33(3).

1.c. Furthermore, document D1 also discloses a method with the features of claim 1: when the transmission ratio of the range-change unit (14) is changed, the automatic transmission (12) is controlled such that "smooth progress" is ensured; for a person skilled in the art this includes the possibility that a synchronized shifting of the range-change unit occurs (the jerk that occurs with non-synchronized shifting of the range-change unit cannot be considered "smooth progress"; a combination of non-synchronized clutch and "smooth progress" would automatically make a person skilled in the art consider creating synchronization conditions). There is nothing in D1 to suggest that the method by which the transmission is controlled could not be carried out at any vehicle speed. Therefore, owing to the combination of the teaching of D1 with common general knowledge in the art, the subject matter of claim 1 is obvious. This claim does not satisfy the requirements of PCT Article 33(3).

2. The additional features of claims 3-6, 10 and 11 are known from documents D1 and D3 or are at least obvious in light of the teaching of said documents. These claims do not satisfy the requirements of PCT Article 33(3).

Furthermore, the additional features of claims 2 and 12 are known from document D1 or are at least obvious

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in light of the teaching of said document. These claims do not satisfy the requirements of PCT Article 33(3).

3. The combination of features contained in dependent claims 7, 8 and 9 is neither known from nor suggested by the available prior art. These features therefore satisfy the requirements of PCT Article 33(2) and (3).

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